

REMARKS

Claims 1-9 and 14-37 are pending in the application, claims 1-5, 14-20 and 25-30 have been previously withdrawn, and claims 6-9, 21-24, and 31-37 stand rejected.

Rejection under 35 U.S.C. §112

Claims 35-36 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended to overcome the rejection. No new subject matter has been entered as a result of these amendments. Claim 35 has been amended to recite that the printed circuit board is arranged parallel to a plane of rotation of the manipulating knob. This is shown clearly in Fig. 4.

Rejection under 35 U.S.C. §103

Claims 6-9, 23, 24, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. Pub. No. 2002/0066658 (“Agetsuma”) in view of U.S. Pat. App. Pub. No. 2002/0033321 (“Miyako”). Applicant respectfully traverses this rejection. As a preliminary matter, please note that for purposes of clarity only, independent claim 6 has been cancelled and rewritten as new claim 38, which additionally includes new elements not recited in the prior version of claim 6. Independent claim 31 has been similarly amended. The dependent claims have been amended to dependent from new claim 38, where appropriate.

The Examiner recites the elements of the independent claims and states that such elements are obvious over the primary reference to Agetsuma, except that Agetsuma does not teach the support member formed by joining a front-side casing member arranged at a front side of the spoke and a back-side casing member arranged at a back side of the spoke. The Examiner then cites the secondary reference to Miyako as providing the missing element.

However, the combination of Agetsuma and Miyako is missing other elements of applicant's claimed invention as set forth in the independent claims, as amended. In that regard, new independent claim 38 has been drafted to recite that the signal changeover means has a printed circuit board and a slide contact mounted between the pivot point and the operational portion and capable of changing over two types of electric signals in response to a rotational movement of the manipulating knob from the neutral position, and the slide contact configured

to slide relative to the printed circuit board during rotational movement of the manipulating knob. This limitation was not previously recited in the independent claims.

Agetsuma does not teach or suggest that the printed circuit board 37b (Fig. 4) and slide contact mounted between the pivot point and the operational portion of the manipulating knob. In applicant's claimed invention, these components are mounted on one side of the manipulating knob body, that is, they are mounted between the pivot point and the operational portion. Because the manipulating knob body has a pivot point, it logically defines two opposite portions, namely, the operational portion and the biasing portion.

However, Agetsuma does not teach or suggest that the knob has a bent portion, thus its circuit board cannot be said to be mounted between a pivot point and an operational portion, as such portions are meaningless in the context of the Agetsuma device. In that regard, Agetsuma discloses a manipulating knob 6 and a connecting pin 5 where the manipulating knob 6 is rotatably and pivotally supported by the connecting pin 5. The Agetsuma specification discloses that:

The manipulating knob 6 is constituted of a knob body 10 made of synthetic resin and a knob cover 11. These knob body 10 and the knob cover 11 are bonded to each other and are integrally formed using a plurality of screws 12. As mentioned previously, the manipulating knob 6 is rotatably and pivotally supported on the support member 4 by means of the connecting pin 5 and has a free-end side thereof protruded into the inside of the space 2 from the rear surface of the pad 1c. (Agetsuma, ¶0030).

Figure 4 of Agetsuma illustrates the relationship between the connecting pin 5 and the manipulating knob 6. As shown in Figure 4, the connecting pin 5 connects the manipulating knob 6 with a support member 4, and such connection is made through the shaft hole 10a formed in the knob body 10. The support member 4 is a generally fixed rectangular member, and the manipulating knob 6 pivots relative to the support member 4 about the connecting pin 5. Agetsuma clearly does not teach or suggest a manipulating knob body having a bent portion defining an operational portion to facilitate user operation of the manipulation knob, a biasing portion configured to bias the manipulating knob to return to a neutral position, and a pivot point between the operational portion and the biasing portion. Where is such a bent portion in Agetsuma? The answer is that it doesn't exist, and thus this structural limitation is completely missing in Agetsuma.

Not only is the bent portion missing in Agetsuma, but because such limitations are missing, there can be no printed circuit board and a slide contact mounted between the pivot point and the operational portion, as required by independent claim 38. Thus, another limitation is completely missing. Although Agetsuma does have a PCB 7 (Fig. 4, Agetsuma), it is not mounted between the pivot point and the operational portion. The particular arrangement of the printed circuit board of applicant's claimed invention provides specific advantages to the device, which are certainly not found in the Agetsuma device. Applicant's specification discloses that:

[T]he printed circuit board of the signal changeover means is arranged parallel to the rotational direction of the manipulating knob body and, at the same time, is mounted on the side plate which is positioned at the side of the manipulating knob body and hence, the manipulating knob, the biasing means and the signal changeover means can be assembled in a compact form. Accordingly, the steering switch for a vehicle can be miniaturized whereby such a steering switch can be mounted on the steering wheel without restricting a mounting space for other switches which are mounted on the steering wheel. (Specification p.53, line 26 to p.54, line 10)

For example, as shown in Fig. 3 of applicant's specification, the height dimension of the of the rotary switch and the dimension from the pivot point to a lower portion of the switch can be reduced due to the structure of the printed circuit board 37b relative to the bent portion. This results in appreciable size reduction, which in turn permits inclusion of a large number of individual switches 9a-11, as shown in Fig. 3. Accordingly, applicant submits that Agetsuma does not teach or suggest applicant's claimed invention of independent claims 31 and 38.

Turning now to the secondary reference to Miyako, this reference is also deficient and does not teach or suggest any of applicant's claimed elements that are missing in Agetsuma. Thus, combining Agetsuma and Miyako does not provide applicant's claimed invention. The elements that are missing in Agetsuma are also missing in Miyako.

With regard to dependent claims 21, 22, 32, and 33, the reference to Castleman in addition to Miyako is also deficient because neither Castleman nor Miyako provide any of the missing features that are missing from the primary reference to Agetsuma. Accordingly, applicant respectfully submits that the claims are patentable over the Agetsuma, Miyako, and/or Castleman taken either individually or in combination.

Conclusion

In view of the above amendment and remarks, applicant respectfully submits that the claims are in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,

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